

--20. A method for mounting a tube in a space in a rotating electric machine defined by a restricting area having a shape corresponding to a shape of the tube comprising the steps of:

inserting the tube into the space;

pressurizing the tube with a hot pressure medium having a temperature that causes the tube to soften and expand until an outer periphery of the tube assumes the shape of the restricting area of the space; and

substituting a cold pressure medium for the hot pressure medium while maintaining a pressure constant to the pressure used in the pressurizing step causing the tube to solidify and permanently assume an expanded shape.

21. The method of Claim 20, wherein the tube being at least one of a cooling tube and a spacer between windings in a stator tooth slot.

22. The method of Claim 20, wherein the pressurizing step comprises allowing the tube to expand until 50% of an original wall thickness of the tube remains.

23. A rotating electric machine, comprising:

a stator including a stator yolk and stator slots separated by stator teeth extending inwardly from the stator yolk and having an undulated side and a flat side;

stator cable windings of an insulated cable configured to fit into concave portions of the undulated side of the stator slots and form spaces between the insulated cable windings and the flat side of the stator teeth, the spaces extending axially through the stator; and

at least one tube made of a dielectric material mounted in the stator slots so as to fill the spaces between the insulated cable windings and the flat side of the stator teeth.

Att  
Cont.

24. The rotating electric machine of Claim 23, wherein:

the at least one tube being made of a polymer material.

25. The rotating electric machine of Claim 23, wherein:

the at least one tube being made of high-density polyethylene.

26. The rotating electric machine of Claim 23, wherein:

the at least one tube being made of cross-linked polyethylene.

27. The rotating electric machine of Claim 23, wherein:

the spaces are triangular; and

the at least one tube being triangular.

28. The rotating electric machine of Claim 23, wherein:

all spaces in the stator slots are filled with the at least one tube.

29. The rotating electric machine of Claim 23, wherein:

the insulated cable comprises

a high-voltage cable that includes

a conductor having a plurality of strands,

an inner semiconducting layer disposed around the conductor,

an insulating layer disposed around the inner semiconducting layer, and

an outer semiconducting layer disposed around the insulating layer.

30. The rotating electric machine of Claim 29, wherein:  
the high-voltage cable having a diameter in a range of 20-250 millimeters (mm) and a  
conducting area in a range of 80-3000 mm<sup>2</sup>.

*Alt  
Cont*

31. The rotating electric machine of Claim 29, wherein:

the high-voltage cable being flexible.

32. The rotating electric machine of Claim 31, wherein:

the layers of the high-voltage cable being configured to adhere to one another when bent.

33. The rotating electric machine of Claim 29, wherein:

at least one pair of the inner semiconducting layer and the insulating layer, and the  
insulating layer and the outer semiconducting layer of the high-voltage cable having a  
substantially same coefficient of thermal expansion.

34. The rotating electric machine of Claim 31, wherein:

the insulating layer comprises a solid material; and,

the respective layers of the high-voltage cable are configured to adhere to each other.

35. The rotating electric machine of Claim 29, wherein:

the respective layers of the high-voltage cable comprise materials having an elasticity and  
coefficients of thermal expansion such that a volume change of the respective layers due to

temperature variations being absorbed by the elasticity of the materials and the respective layers remain in contact with each other over an operating temperature range.

36. The rotating electric machine of Claim 29, wherein:

the respective layers of the high-voltage cable comprise materials having a high elasticity.

*Alt  
ent*

37. The rotating electric machine of Claim 29, wherein:

each of the respective layers of the high-voltage cable comprise materials having substantially same coefficients of thermal expansion.

38. The rotating electric machine of Claim 29, wherein:

the inner semiconducting layer and the outer semiconducting layer each being configured to constitute a substantially equipotential surface.

39. An apparatus for mounting a tube in a space of a rotating electric machine defined by a restricting area having a shape corresponding to a shape of the tube comprising:

means for inserting the tube into the space;

means for pressurizing the tube with a hot pressure medium having a temperature that causes the tube to soften and expand until an outer periphery of the tube assumes the shape of the restricting area of the space; and

means for substituting a cold pressure medium for the hot pressure medium while maintaining a pressure constant to the pressure used in the pressurizing step causing the tube to solidify and permanently assume an expanded shape.--